REMARKS

The Letter submitted concurrently with the filing of the above-identified application is noted. This Letter indicated that a Supplemental Preliminary Amendment would be filed in due course, with claims to be considered on the merits in the above-identified application. The present Supplemental Preliminary Amendment presents such claims to be considered on the merits in the present application.

By the present Supplemental Preliminary Amendment, Applicants are canceling claim 1, the sole claim in the above-identified application at filing, without prejudice or disclaimer, and are adding new claims 2-17 to the application. All of these newly added claims 2-17 are directed to a fabrication method of a semiconductor integrated circuit device, with claim 2 being the sole independent newly added claim.

Note that claim 2 defines a fabrication method including, inter alia, forming an interconnect groove in an upper surface of a first insulation film formed over a major surface of a wafer; depositing a metal layer containing copper as its principal component over the upper surface of the first insulating film and inside the interconnect groove; removing the metal layer outside the interconnect groove by chemical mechanical polishing so as to leave a metal interconnect in the interconnect groove, and, thereafter, carrying out wet cleaning to a major surface of the wafer; thereafter, carrying out first and second plasma treatments in first and second gas atmospheres each including an ammonia gas, and thereafter depositing an insulation copper diffusion barrier film by plasma chemical vapor deposition on

the upper surface of the first insulation film and metal interconnect.

Claims 3 and 4, dependent respectively on claims 2 and 3, respectively recites that the wet cleaning treatment includes a cleaning process using an alkali solution and a cleaning treatment using an acid solution; and recites that the alkali solution includes aminoethanol. Claims 5-7, each dependent on claim 3, respectively recites that the wet cleaning treatment has a step to carry out a cleaning process using the alkali solution, a reducing process and a cleaning process using the acid solution in that order; defines the further step of carrying out a reducing process after removing the metal layer outside the interconnect groove and before carrying out a wet cleaning treatment; and recites the further step of carrying out a reducing process after this removal of the metal layer outside the interconnect groove and before a cleaning process using the acid solution. Claims 8-10 are each dependent on claim 7, and respectively recites that the reducing process carries out a heating process to the major surface of the wafer in a hydrogen gas atmosphere; recites that the reducing process carries out a hydrogen gas plasma process to the major surface of the wafer; and recites that the reducing process carries out an ammonia gas plasma process to the major surface of the wafer. Claims 11 and 12, dependent respectively on claims 2 and 11, respectively recites that the wet cleaning treatment includes a step to carry out a cleaning process using an acid solution; and recites a further step of carrying out a reducing process after removal of the metal layer outside the interconnect groove and before the cleaning process, using an acid solution.

The remaining claims 13-17 being newly added are each dependent on

claim 2. Claims 13 and 14 respectively recites that a heating process is carried out on the wafer in a reducing gas atmosphere after the wet cleaning treatment and before the first and second plasma treatments; and recites that the metal layer is deposited by a plating technique. Claims 15-17 respectively defines a dielectric constant of the first insulation film; recites that the insulating copper diffusion barrier film is formed continuously without releasing to the air, after the first and second plasma treatments; and recites that the insulating copper barrier film is a silicon nitride film or silicon carbide film. Note, for example, pages 61-73 of Applicants' specification.

Note also, for example, Embodiment 2 on pages 93 and 94, Embodiment 3 on pages 94 and 95, and Embodiment 4 on pages 95-97, of Applicants' specification. See also Embodiment 7 on pages 110-113 of Applicants' specification.

Entry of the present amendments, and, subsequent thereto, examination of the above-identified application on the merits in due course, are respectfully requested.

Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to the Deposit Account No. 01-2135 (Case No. 501.40678CX1), and please credit any excess fees to such Deposit Account.

Respectfully submitted,

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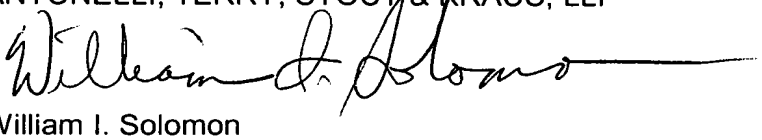

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